

## Notes on some Marine Prosobranchs from Tropical West Africa

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During a short stay at the « Musée Royal du Congo Belge », Tervuren, Belgium the present writer received from Dr. E. DARTEVELLE, Curator of the mollusk collection, some samples of marine shells for identification. The material contained the following species, which form the subject of the present article :

*Solariella canaliculata* E. A. SMITH.

*Trivia dartevellei* n. sp.

*Nassa pachychilus* VON MALTZAN.

*Nassa margaritifera* (DUNKER).

The author wishes to express his thanks to Dr. E. DARTEVELLE for handing over the material and to Mr. G. L. WILKINS for loan of material for comparison from the British Museum (Nat. Hist.).

***Solariella canaliculata* E. A. SMITH. — Figures 1-7.**

1871 *Solariella canaliculata* E. A. SMITH p. 736, pl. 65, fig. 28.

1911 *Solariella Dereimsi* DOLLFUS p. 41, pl. 2, fig. 40-43.

1912 *Solariella Dereimsi* DAUTZENBERG p. 75.

1946 *Solariella Monodi* FISCHER-PIETTE & NICKLÉS p. 48, fig. 1-3.

1946 *Solariella canaliculata* FISCHER-PIETTE & NICKLÉS p. 50, fig. 4,5.

1946 *Solariella Dereimsi* FISCHER-PIETTE & NICKLÉS p. 50.

1947 *Solariella Dereimsi* NICKLÉS p. 3.

1947 *Solariella canaliculata* NICKLÉS p. 3.

1947 *Solariella Monodi* NICKLÉS p. 3.

1950 *Solariella Dereimsi* NICKLÉS p. 39, fig. 14.

1950 *Solariella Monodi* NICKLÉS p. 39, fig. 15.

*Material* : Bellas Luanda, West Africa, Shore. DARTEVELLE leg. IV. 1949. Musée Royal du Congo Belge N°. 319832 to 319887, 55 shells.

*Remarks* : SMITH describes *S. canaliculata* as follows : « Testa parva, late umbilicata, margaritacea, pulcherrime prismatica, spira depresso-conica, anfr. 5, primi 2 læves, cæteri spiraliter lirati et infra suturam canaliculatum tubercularum albidarum (hic illic castaneo notarum) serie ornati, anfract. ult. carinis duabus castaneo-punctatis et basi zona purpureo-brunnea cinctus, umbilicus perspectivus, chorda tuberculari marginatus; apertura subcircularis ». The size is stated to be  $2 \times 3$  mm. The description of the shell, which is stated to originate from Whydah, Nigeria, is accompanied by a reasonably good figure.

The description of *S. Dereimsi* given by DOLLFUS (l. c.) runs as follows : « Testa parva, margaritacea, turbinata; spira conica, sutura profunda; anfractibus quinque, duobus primis læves, ceteris spiraliter tribus carenis ornatis et transversale decussatis; apertura rotundata vel subquadrata, obliqua, disjuncta; umbilico profundo, satis lato, eleganter plicato ». The diameter is stated to be 4.5 mm, height : 4 mm. DOLLFUS states that *S. Dereimsi* is closely related to *S. canaliculata* E. A. SMITH. The latter species is, however, distinguished by the lack of spiral bands at the base, the more angulose periphery, the more canaliculated umbilicus, surrounded by a row of small tubercles.

When reading the two descriptions given above, it becomes evident, that the two species are very similar in many characters, for instance in : the shape of the shell, the presence of a protoconch which has two smooth whorls, the total number of whorls being 5 in both. The spiral sculpture consists of 3 ridges of which the uppermost one is more or less transformed into a row of nodules. The resemblance of the two species is strongly supported by the figures given by SMITH and DOLLFUS.

FISCHER-PIETTE & NICKLÉS (l. c.) keep *S. canaliculata* and *S. Dereimsi* as separate species. They found in their material that one shell of *S. canaliculata* had a distinct spiral sculpture at the base and conclude that the absence of the basal sculpture is a juvenile character only. It is stated that in *S. canaliculata* no spiral ridges are present in the umbilicus, while in *S. Dereimsi* 2 to 5 such ridges are seen. The number of basal spiral bands is stated to be 6 in *S. canaliculata*, while there are 4 in *S. Dereimsi*. It is further mentioned, that in *S. canaliculata* two ridges below the uppermost row of tubercles are present on the body whorl. On the upper whorls only one ridge is visible, the lowest one being covered by the subsequent whorl. In *S. Dereimsi* 3 spiral ridges are stated to be present (besides the uppermost row of nodules), and sometimes a very faint additional ridge is developed.

Besides the two species mentioned FISCHER-PIETTE & NICKLÉS describe

a third species of *Solariella* : *S. Monodi*. It is stated that it is a little more flattened than *S. Dereimsi* and a little less than *S. canaliculata*. It further differs from these two species in the number of spiral ridges on the penultimate whorl, *S. Monodi* having 3, *S. Dereimsi* 2, while there is one only in *S. canaliculata*. There is no spiral ridge surrounding the umbilicus, and the base of the shell has 8 spiral bands, while a

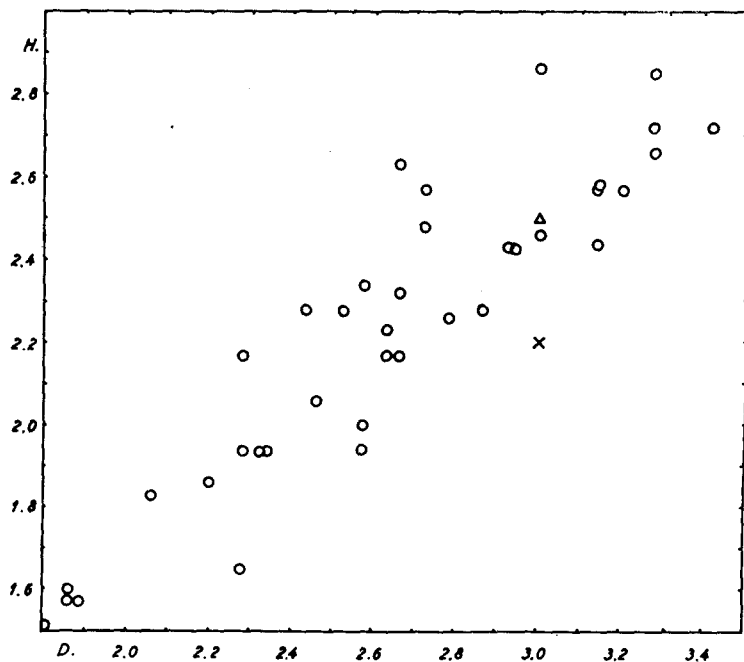


Fig. 1. — Relationship between Diameter (D) and Height (H) in *Solariella canaliculata* E.A. SMITH.

- Present Material.
- × *S. canaliculata* FISCHER-PIETTE & NICKLÉS (l. c.).
- Δ *S. monodi* FISCHER-PIETTE & NICKLÉS (l. c.).

smaller number is found in the two other species. In *S. Monodi* a fourth spiral ridge is present on the body whorl forming a continuation of the insertion of the outer lip, and the subsutural ridge is stated to be granulose. The number of whorls is 5, of which the protoconch forms 2.

FISCHER-PIETTE & NICKLÉS give very good figures of *S. Monodi* and *S. canaliculata*. NICKLÉS (1947) mentions all the three species and the same author (1950) describes and figures *S. Dereimsi* and *S. Monodi*.

The present sample seems to suggest that the said 3 species should be merged into one having a considerable range of variation in the sculpture. It has been found that the spiral ridge nearest to the upper

suture in most shells is nodulose as in *S. canaliculata* and *S. Dereimsi*, but in some cases it appears as a granulose, but otherwise continuous ridge as in *S. Monodi*. Some shells exhibited intermediate stages between these two. In all three species there is one continuous spiral ridge at the periphery of the body whorl ending at or near the insertion of the outer lip. Between the latter and the subsutural ridge (or row of nodules) there may be one or two continuous spiral ridges, of which one in some shells may tend to become less distinct. In some shells the peripheral ridge will continue beyond the insertion of the outer lip and continue on the penultimate whorl just above the lower suture. It was observed that in some juvenile shells no sculpture was present at the base of the shell, i. e. below the peripheral ridge. Generally, however, such a sculpture is present both in juveniles and adults. It consists of a number of flat bands separated by narrow interstices. The number of bands was counted in some shells, and was found to vary between 3 and 6, most shells having 4 or 5. In some shells the umbilicus is surrounded by a more or less tubercular edge, which may be quite distinct in some shells, while it is more obsolete in others. In the interior of the umbilicus some shells have a number of ridges as described for *S. Dereimsi*, while in other shells no such ridges are found (confer *S. canaliculata*). Also in the radial sculpture a considerable variation has been observed : in some shells a fine striation is seen which in others may become more distinct and even develop into irregular plicae, particularly distinct on the body whorl.

The shell of *S. canaliculata* is stated by SMITH (l. c.) to be « depresso-conica », that of *S. Dereimsi* described by DOLLFUS (l. c.) as « conica », while the shell of *S. Monodi* holds an intermediate position (FISCHER-PIETTE & NICKLÉS l. c.). In the present sample all undamaged shells, altogether 38 specimens, were measured as to diameter and height. The result of the measurements is given in fig. 1, showing the ratio between the two measurements just mentioned. In addition, the measurements of the type of *S. Monodi* and of the shell of *S. canaliculata* mentioned by FISCHER-PIETTE & NICKLÉS have been indicated. It is seen that the measurements of the present material indicate that the sample comprises only one species with a wide variation in the shape of the shell. The colouration of *S. canaliculata* is described as consisting of a chestnut spot on every seventh nodule and a zone of purplish brown surrounding the umbilicus. In *S. Dereimsi* the colouration consists of bands of reddish spots and the same is stated to be the case in *S. Monodi*. In the present sample some shells have irregular reddish or brownish spots on the upper parts of the shell, and at the base a reddish or brownish spiral band or a row of spots may be present.

The conclusion to be drawn from an investigation of the present sample and a comparison with the available descriptions and figures of the three hitherto known species of *Solariella* from this region, *S. canaliculata*, *S. Dereimsi* and *S. Monodi*, seems to favour the supposition that they should rather be united into one species.

*Description* : Shell conical with a smooth protoconch consisting of about  $2\frac{1}{2}$  whorls. The total number of whorls may rise to 5. Suture deep and the subsutural part of the whorl flattened, separated from the remaining part of the whorl by a rounded edge, sometimes having developed into a more or less continuous spiral ridge, but in most shells into a row of rounded tubercles. Below this ridge 2 or 3 spiral

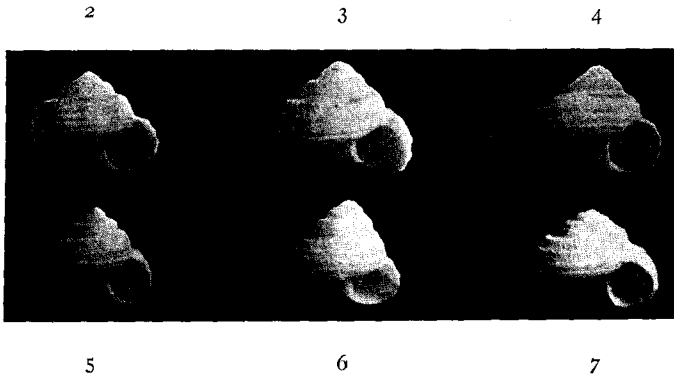


Fig. 2 to 7. — *Solariella canaliculata* E.A. SMITH. The 6 specimens figured show the variation in the shape of the shell and in sculpture. About  $5\times$ .

ridges are present of which the lowest one forms a continuation of the insertion of the outer lip and hence is mostly, but not always only seen in the body whorl. These ridges may be somewhat nodulose on the body whorl. The base of the shell has a number (up to 6 or a little more) of flat spiral bands separated by narrow interstices, and further up to 4 spiral ridges may be present in the wall of the umbilicus, in some shells these may become more or less obsolete. The radial sculpture consists in some shells of fine lines, which in other shells develop into rather coarse and irregular ridges. The base of the shell has mostly a fine radial striation, while in the wall of the umbilicus this sculpture is more distinct, in some shells becoming even slightly lamellose. The umbilicus is very wide, separated from the base of the shell by a more or less distinct rounded edge, which in some shells is transformed into a row of nodules. Aperture almost circular, with a rounded angle at the umbilical side of the base. Colouration : whitish-nacreous with spiral rows of brown or reddish, somewhat irregular spots. The base of the

shell with a brown or red spiral band. Measurements : see fig. 1. The largest shell of the present sample had a diameter of 3.4 mm, while DOLLFUS states the maximum diameter to be 4.5 mm.

*Distribution* : Bay of Levrier (Mauritania), Senegal, Whydad (Nigeria).

***Trivia dartevellei*, n. sp.** — Figures 8-9.

*Material* : Landana. Cabinda, West Africa. Shore. DARTEVELLE leg. 1937. Musée Royal du Congo Belge n°. 521253, 1 shell (Holotype).

The shell is slightly worn, but still in good condition.

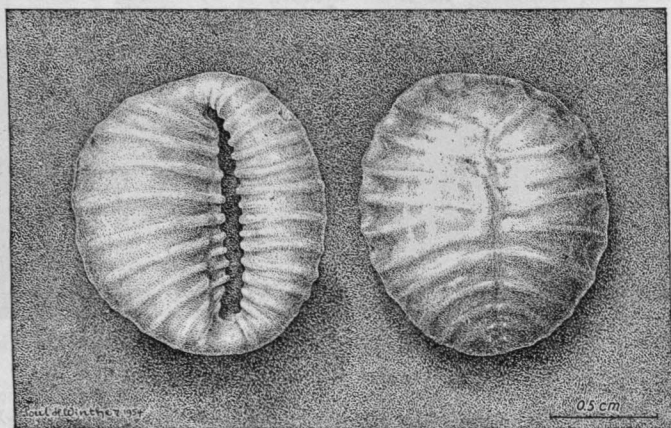


Fig. 8. — *Trivia dartevellei* n. sp. Ventral view. About 3 ×.

Fig. 9. — *Trivia dartevellei* n. sp. Dorsal view. About 3 ×.

*Description* : Seen from the dorsal side the shell is rather broad, almost circular, the dorsal surface is nearly semi-globular and the ventral surface is somewhat convex. The dorsal side has a distinct, rather broad, longitudinal depression. The whole surface of the shell is furnished with low but sharp transversal ridges, separated by broad interstices. The ridges tend to become somewhat nodulose near the dorsal impression, and gradually become more distinct at the ventral surface, forming sharp denticles at the aperture. The columellar side has 10 ridges and 11 denticles at the aperture. The labial side has 14 ridges but 16 denticles. Aperture rather straight and narrow, anterior part slightly broadened. Colouration : Uniformly greyish-brown. Measurements : Length : 13.6 mm. Breadth : 12.3 mm. Height : 8.7 mm.

*Relationship* : The present species is closely related to *Trivia pediculus* L., a species having a wide distribution in the West Indian Sea. Both species have a longitudinal, dorsal impression. The shell of the present species is much broader than the shell of *T. pediculus* L. and distinct differences in the shape and number of the transversal ridges of the two species are also found : *T. pediculus* L. having 28 to 31 on the columellar side, while there are 27 to 33 on the labial side. The present shell shows no trace of the 6 darker brown spots found in *T. pediculus* L.

The only species of *Trivia* hitherto found in this area is *T. candidula* GASKOIN, a species entirely different from the present one, having no dorsal impression and a much larger number of transversal ridges.

*Diagnosis* : A *Trivia* with a broad, almost semiglobular shell with a longitudinal dorsal impression. The columellar side with 10 transversal ridges, the labial side with 14 transversal ridges.

*Distribution* : off Cabinda, West Africa.

*Holotype* : Musée Royal du Congo Belge, Tervuren, Belgium.

***Nassa pachychilus* VON MALTZAN.** — Figures 10.

1884 *Nassa pachychilus* VON MALTZAN p. 70 (no figure).



Fig. 10. — *Nassa pachychilus* VON MALTZAN. About nat. size.

Fig. 11. — *Nassa margaritifera* (DUNKER). About nat. size.

*Material* : Cabinda, West Africa. Shore. DARTEVELLE leg. 1937. Musée Royal du Congo Belge N°. 555890, 1 shell.

*Remarks* : The species was not figured by VON MALTZAN, and there seems to be no subsequent records of it in the literature. In the DAUTZENBERG collection in the « Institut Royal des Sciences Naturelles de Belgique », Bruxelles, I have studied two shells being identical with the present species. One of these shells was labelled « *Nassa pachychilus*? VON MALTZAN », but no statement is made, whether the shell has been compared to the type of VON MALTZAN. Unfortunately the types to all evidence have disappeared, since they were not found in a

collection of VON MALTZAN's species of *Nassa* described in the above mentioned paper, which I borrowed from the Zoologisches Museum Berlin for study. The identification of the present shell is thus entirely based upon the shell from the DAUTZENBERG collection and therefore still subjected to some doubt. It should be noted that both the two shells from the DAUTZENBERG collection and the present one agree very well with VON MALTZAN's description. The following description is based only upon the present shell which is somewhat larger than the type specimen.

*Description* : The shell has  $9\frac{1}{2}$  whorls, of which the protoconch forms  $2\frac{1}{2}$ . Suture undulate. The axial sculpture consists of prominent, rounded varices, which are of a somewhat unequal size. Towards the body whorl the varices tend to become less prominent, except that one varix located opposite to the labial varix is extremely well developed. There are 20 varices on the body whorl (excl. the labial varix), while the penultimate whorl has 13 varices. The spiral sculpture consists of finely incised lines dividing the surface of the shell into flat bands. There are 15 spiral lines on the body whorl, while the penultimate whorl has about 10. Three or four lines nearest to the upper suture are very close set. Aperture almost circular. Columellar side with a thin, extended callus and a denticle near the insertion of the outer lip. The latter has a well developed, reflected varix. Inside of outer lip with 7 denticles. The reflected edge of the labial varix is crenulated corresponding to the spiral sculpture of the body whorl. Siphon short, surrounded by a sharp spiral edge. Colouration : uniformly yellowish-brown. Measurements : VON MALTZAN :  $13$  to  $14.5 \times 7$  to  $9$  mm. Present shell :  $18.1 \times 9.6$  mm.

*Distribution* : Senegal, French Guinea, Cabinda.

***Nassa margaritifera*** (DUNKER) — Figure 11.

1847 *Buccinum margaritiferum* DUNKER p. 60 (no figure).

1850 *Buccinum margaritiferum* PHILIPPI p. 129, pl. 1, fig. 12.

1851 *Nassa costellifera* A. ADAMS p. 113.

1915 *Nassa margaritifera* BARTSCH p. 244.

1928 *Nassarius margaritifer* TOMLIN p. 321.

1930 *Nassa costellifera* = *margaritifera* TOMLIN p. 42.

*Material* : Cabinda, West Africa. Shore. DARTEVELLE leg. 1933. Musée Royal du Congo Belge N°. 277654, 1 shell.

*Remarks* : The identification was checked by comparison with a shell from the Philippines kept in the British Museum (Nat. Hist.). The record of this species in tropical West Africa is noteworthy, since it



is a species hitherto known from the Indo-Pacific region, where it is known from the Philippine Is. to the Andamanes. In addition it has been mentioned from the South African region by BARTSCH (l. c.) and TOMLIN (1928).

The species has not been recorded previously from West Africa, and the possibility that the present shell has been introduced with *Cypraea moneta*, which species is imported in large quantities in some places in West Africa, cannot be entirely ruled out. On the other hand, the shell does not appear to have been dead for a long time, the colouration being quite fresh. The fact that the shell is not worn at all seems to indicate that it had been lying at the finding place for a short time only.

It would be of great interest to have living specimens from West Africa of this species to decide whether the species actually occurs in this region.

*Description* : Whorls plane, separated by a rather deep suture. The axial sculpture consists of somewhat oblique, sharp ribs, of which 31 are present on the body whorl, while there are 26 ribs on the penultimate whorl. Between the ribs numerous fine growth lines can be seen by magnification. The spiral sculpture consists of flattened bands separated by finely incised lines. The bands form rounded nodules where they cross the axial ribs, while they become rather indistinct between the ribs. Between the uppermost band and the following one a broad interstice is present. The body whorl has 13 spiral bands, while there are 5 on the penultimate whorl and 4 on the remaining ones. Aperture ovate, sharply angulose above. Outer lip faintly concave near the insertion, becoming convex further down. Interior of outer lip has 9 rounded denticles, of which the 3 uppermost become gradually finer. The denticles are situated at some distance from the sharp edge of the outer lip. Siphon broad and short. Colouration : Body whorl brown with two whitish spiral bands, interrupted in some places by brown spots, particularly in the interstices between the ribs. The whitish bands are distinctly seen inside the aperture. Upper whorls brown with irregular whitish spots. On the whole shell the nodules are often whitish. Measurements :  $18.9 \times 10.4$  mm (Protoconch broken off), aperture :  $10.2 \times 5.0$  mm.

*Distribution* : Indo-Pacific region, South Africa, West Africa : Cabinda.

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